ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 42

1. CONTRACT/PURCH. ORDER/ AGREEMENT NO.	2. DELIVERY ORDER/ CALL NO.	3. DATE OF ORDER/CALL (YYYYMMMDD)	4. REQ./ PURCH. REQUEST NO.	5. PRIORITY
N65540-15-D-0005	N6449819FBB42	2019 Sep 26	1300782655	

6. ISSUED BY CODE N64498
NAVAL SURFACE WARFARE CENTER PHILA
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
5001 SOUTH BROAD STREET
PHILADELPHIA PA 19112

7. ADMINISTERED BY *(If other than 6)* CODE
SEE ITEM 6

8. DELIVERY FOB
[ ] DESTINATION
[X] OTHER
(See Schedule if other)

9. CONTRACTOR CODE 07MU1 FACILITY
NAME AND ADDRESS
GENERAL DYNAMICS INFORMATION TECHNOLOGY, GDIT
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
3150 FAIRVIEW PARK DR STE 100
FALLS CHURCH VA 22042-4504

10. DELIVER TO FOB POINT BY (Date) *(YYYYMMMDD)*
SEE SCHEDULE

11. MARK IF BUSINESS IS
[ ] SMALL
[ ] SMALL DISADVANTAGED
[ ] WOMEN-OWNED

12. DISCOUNT TERMS

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 15

14. SHIP TO CODE N64498
NAVAL SURFACE WARFARE CENTER PHILA
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
NSWC PHILADELPHIA DIVISION
1601 LANGLEY AVENUE
BLDG 542
PHILADELPHIA PA 19112

15. PAYMENT WILL BE MADE BY CODE HQ0338
DFAS COLUMBUS CENTER,SOUTH ENTITLEMENT O
P.O. BOX 182264
COLUMBUS OH 43218-2264

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein. REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR | SIGNATURE | TYPED NAME AND TITLE | DATE SIGNED *(YYYYMMMDD)*

[ ] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE
See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* *If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.*

24. UNITED STATES OF AMERICA
(b) (6)(b) (6)(b) (6)(b) (6)
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)
(b) (6)
CONTRACTING / ORDERING OFFICER

25. TOTAL $8,733,190.48
26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE | c. DATE *(YYYYMMMDD)* | d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

f. TELEPHONE NUMBER | g. E-MAIL ADDRESS

36. I certify this account is correct and proper for payment.
a. DATE *(YYYYMMMDD)* | b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS

[ ] PARTIAL [ ] FINAL

31. PAYMENT
[ ] COMPLETE [ ] PARTIAL [ ] FINAL

32. PAID BY

33. AMOUNT VERIFIED CORRECT FOR

34. CHECK NUMBER

35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED *(YYYYMMMDD)*	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO.	42. S/R VOUCHER NO.

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	Engineering & Tech Services CPFF in support of the Navy Modernization Programs of Hull Material and Electronics (HM&E) systems from 25 months through 36 months. Technical services are further described in the Statement of Work.				[redacted]
				ESTIMATED COST FIXED FEE	[redacted]
				TOTAL EST COST + FEE	

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AA	Holding SLIN for CLIN 0003 CPFF FOB: Destination PSC CD: R425	1	Lot		[redacted]
				ESTIMATED COST FIXED FEE	[redacted]
				TOTAL EST COST + FEE	

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AB	Funding SLIN for CLIN 0003 CPFF FOB: Destination PURCHASE REQUEST NUMBER: 1300792655 PSC CD: R425	1	Lot		[redacted]
				ESTIMATED COST FIXED FEE	[redacted]
				TOTAL EST COST + FEE	
	ACRN AA CIN: 130079265500001				

FOIA Exemption B4 Contractor Proprietary and Private

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004					[redacted]

Support Costs
COST
includes material, travel, incidential subcontracting and other direct costs in support of Item 0003 in accordance with the Statement of Work. This cost is a Not-To-Exceed amount.

ESTIMATED COST [redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004AA		1	Lot		[redacted]

Holding SLIN for CLIN 0004
COST
FOB: Destination
PSC CD: R425

ESTIMATED COST

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004AB		1	Lot		[redacted]

Funding SLIN for CLIN 0004
COST
FOB: Destination
PURCHASE REQUEST NUMBER: 1300792655
PSC CD: R425

ESTIMATED COST

ACRN AA
CIN: 130079265500002

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005					[redacted]
OPTION	Support Cost- Philadelphia, PA COST This option will be exercised if the ship location is in Philadelphia, PA. This CLIN is for the addition costs for OCDs and Travel only to Philadelphia, PA as Not to Exceed.				
				ESTIMATED COST	[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AA		1	Lot		[redacted]
OPTION	Holding SLIN for CLIN 0005 COST Not to Exceed: [redacted] FOB: Destination PSC CD: R425				
				ESTIMATED COST	[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006					[redacted]
OPTION	Support Cost- Pascagoula, MS COST This option will be exercised if the ship location is in Pascagoula, MS only. This CLIN is for the addition costs for OCDs and Travel only to Pascagoula, MS as Not to Exceed dollar amount.				
				ESTIMATED COST	[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006AA		1	Lot		[redacted]
OPTION	Holding SLIN for CLIN 0006 COST Not to Exceed: [redacted] FOB: Destinati PSC CD: R425				
				ESTIMATED COST	[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007					[redacted]
OPTION	Support Costs- Mayport, FL COST This option will be exercised if the ship location is in Mayport, FL only. This CLIN is for the addition costs for OCDs and Travel only to Mayport, FL as Not to Exceed dollar amount.				
				ESTIMATED COST	[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007AA		1	Lot		[redacted]
OPTION	Holding SLIN for CLIN 0007 COST Not to Exceed: [redacted] FOB: Destination PSC CD: R425				
				ESTIMATED COST	

Section C - Descriptions and Specifications

STATEMENT OF WORK

BACKGROUND:

The Naval Surface Warfare Center Philadelphia Division (NSWCPD), in support of the US Navy's DDG Modernization Back Fit (DDGM BF) Program requires eight alterations to be completed onboard USS MASON (DDG 87)

1. SCOPE:

Provide labor, material, installation, and testing support services to accomplish the following DDG Mod Ship Alterations (Core Alts):

S/A 70403K - Digital Fuel Control System
S/A 71604K - MCS/DCS Upgrade
S/A 71615K - DVSS
S/A 71726K - IBNS Upgrade
S/A 73091K – GEDMS
S/A 77427K - Digital Indicators
S/A 77829K - RADAR and TDR TLIS
S/A 84226K – OOD Flat Panel
C-DR Box Connectorization

1.1. This work will be performed in the majority of the compartments throughout the ship.

1.2. Much of the Equipment, Spaces or Documentation is classified and subject to the applicable provisions of the National Industrial Security Program Operating Manual, DOD 5220.22-M (0584-LP-179-6400).

1.2.1. Confidential Spaces:

- Combat Information Center (1-126-0-C)
- Central Control Station and DC Central (1-268-0-C)
- Combat Systems Maintenance Central, Technical Library and Repair 8 (01−130−0−Q)
- Combat Systems Equipment Room No. 1 (2−53−1−C)
- Combat Systems Equipment Room No. 2 (2−126−2−C)
- Combat Systems Equipment Room No. 3 (1−300−0−C)
- Communication Center (2−126−1−C)
- IC and Gyro Room No. 1 (4−94−0−C)
- IC and Gyro Room No. 2 (3−300−0−C)
- Sonar Equipment Rm 3 (3-18-0-Q)
- Security Forces Issue Room (1-54-1-A)
- Sonar Control Room (2-50-2-C)
- Sonar Equipment Room No. 1 (1-18-0-Q)
- Radar Room No. 1 (03-128-0-C)
- Radar Room No. 2 (03-142-0-C)

2. REFERENCES:

2.1. NAVSEA FY20 Standard Items
2.2. DDG Mod Critical Path Equipment, Cable System to ISEA and Test Requirement Turnover Schedule for DDG 87 USS MASON
2.3. SHIPALT DDG-51-01005, 321-8766040 REV A, DMP IDD CABLE ROUTING
2.4. SHIPALT DDG-51-01005, 321-8766039 REV A, DMP CABLE ROUTING (IDD) MN CABLEWAY CHECKPOINT LOCATION
2.5. SHIPALT DDG-51-70403, 438-8765815 REV A, FUEL CONTROL SYSTEM CNSLD ELECTRICAL DWG & ML
2.6. SHIPALT DDG-51-70403, 438-8765816 REV A, FUEL CONTROL SYSTEM WCL
2.7. RLAR 70403/DDG87/1181514
2.8. SHIPALT DDG-51-71604, 436-8766041 REV A, DDGM MCS/DCS UPGRD FIRE DET SYS ITB CNSLD ELEC MODS & ML
2.9. SHIPALT DDG-51-71604, 431-8765976 REV A, DDGM MCS/DCS UPGRD AUTO HEAT STRESS SYS CNSLD ELEC DWG & ML
2.10. SHIPALT DDG-51-71604, 431-8765977 REV A, DDGM MCS/DCS UPGRD AUTO HEAT STRESS SYS WCL
2.11. SHIPALT DDG-51-71604, 324-8765958 REV A, DDGM MCS/DCS UPGRD THERMAL MONITORING CNSLD ELEC DWG & ML
2.12. SHIPALT DDG-51-71604, 300-8765998 REV A, DDGM MCS/DCS UPGRD UCC, RSC, & DIU CNSLD ELEC DWG & ML
2.13. SHIPALT DDG-51-71604, 300-8765999 REV A, DDGM MCS/DCS UPGRD UCC, RSC, & DIU WCL
2.14. SHIPALT DDG-51-71604, 302-8765971 REV A, DDGM MCS/DCS UPGRD INSTALL POTW AUTOMN ELEC MODS & ML
2.15. RLAR 71604/DDG87/1181984
2.16. RLAR 71604/DDG87/1182376
2.17. SHIPALT DDG-51-71615, 439-8765818 REV A, DIGITAL VIDEO SURVEILLANCE SYSTEM CNSLD ELEC DWG & ML
2.18. SHIPALT DDG-51-71726, 428-8765832 REV A, DDGM FULL IBS UPGRD CNSLD ELEC DWG & ML
2.19. SHIPALT DDG-51-71726, 428-8765833 REV A, DDGM FULL IBS UPGRD LIST OF CONNECTIONS
2.20. RLAR 71726/DDG87/1182171
2.21. SHIPALT DDG-51-73091, 184-8766032 REV A, GEDMS AN/USQ-82(V) FOUNDATION MODS & ML
2.22. SHIPALT DDG-51-73091, 431-8766033 REV A, GEDMS AN/USQ-82(V) CNSLD ELEC DWG & ML
2.23. SHIPALT DDG-51-73091, 431-8766034 REV A, GEDMS AN/USQ-82(V) LIST OF CONNECTIONS
2.24. SHIPALT DDG-51-73091, 431-8766035 REV A, GEDMS BACKBONE & NODE INTCON CABLE RTG PLAN
2.25. SHIPALT DDG-51-73091, 512-8766036 REV A, GEDMS AN/USQ-82(V) HVAC & PP MODS & ML
2.26. SHIPALT DDG-51-73091, 431-8790067 REV A, REMOVE MINI-BOF PLANT COMPLETELY ON DDG 87 ONLY

2.27. SHIPALT DDG-51-77427, 180-8765914 REV A, DIGITAL INDICATORS STRUCTURAL DRAWING & ML
2.28. SHIPALT DDG-51-77427, 437-8765915 REV A, DIGITAL INDICATORS ELECTRICAL DRAWING & ML
2.29. SHIPALT DDG-51-77427, 437-8765916 REV A, DIGITAL INDICATORS WIRE CONNECTION LIST
2.30. RLAR 77427/DDG87/1181153
2.31. SHIPALT DDG-51-77829, 437-8765819 REV A, INSTALL TANK SENSORS (RADAR/TDR) ELECTRICAL MODS & ML
2.32. SHIPALT DDG-51-77829, 437-8765820 REV A, INSTALL TANK SENSORS (RADAR/TDR) ELECTRICAL WCL
2.33. SHIPALT DDG51-84226K, 180-8765959 REV A, OOD FLAT PNL/MFCR STRUCTURAL DRAWING
2.34. SHIPALT DDG51-84226K, 437-8765960 REV A, OOD FLAT PNL/MFCR ELECTRICAL DWG & ML
2.35. SHIPALT DDG51-84226K, 437-8765961 REV A, OOD FLAT PNL/MFCR WIRE
2.36. DDG MOD EQUIPMENT ACCESS & LOADOUT LIST REV A
2.37. 4720–DDG 87/FY20, Ship Alteration Material Summary (4720/3)
2.38. AIT Support Services Spec 980-90-007
2.39. MIL-STD-2003, Department of Defense Standard Practice Electric Plant Installation Standard Methods (EPISM) for Surface Ships and Submarines
2.40. MIL-STD-1310, Department of Defense Standard Practice Shipboard Bonding, Grounding and Other Techniques for Electromagnetic Compatibility, Electromagnetic Pulse (EMP) Mitigation and Safety
2.41. MIL-DTL-22520G, General Specification for Crimping Tools and Wire Termination
2.42. MIL-STD 2042B (SH) Fiber Optic Topology Installation Standard
2.43. DDG 87 Asset Recovery List
2.44. MIL-STD-2035, Non Destructive Test Acceptance Criteria
2.45. MIL-STD-1689, Fabrication, Welding and Inspection; Structural
2.46. 8100-3513-0060 REV AD Standard Methods for Mounting ELEC EQUIP less than 75 LBS
2.47. 8100-1281-0223 – Access Panels
2.48. 8100-2400-0013 – Penetration Water Shield for Non-Tight Flats
2.49. 436-8418029 Rev A, Continuous Thermal Monitoring (CTM) System Block Diagram & CTM-Switchgear Interface Control Drawing for DDG-51 Class Modernization Back-fit
2.50. 605-2540769 Rev D, Label Plate Standards
2.51. 320-6598270 Rev H, One Line Diagram Power System 60 HZ
2.52. 302–8418030, No 1 and No 2 Motor Controllers Wiring Modification for Potable Water Control System
2.53. 9252-INFRMT-0106 NSWCPD AIT Test Procedure List – DDG 87 Rev-
2.54. 9252-INFRMT-0098 NSWCPD DDG 87 Legacy Wiring Discrepancy List-Rev C
2.55. 9252-INFRMT-0017 NSWCPD MCS Fuse & LED HW List – Rev E
2.56. 9252-INFRMT-0018 NSWCPD DIU EC Battery Installation Procedure – Rev A
2.57. 9252-INFRMT-0019 NSWCPD AIT Special Test Equipment for 514 TPs – Rev B
2.58. 9252-INFRMT-0020 NSWCPD Cable Prep Guidance – Rev D

2.59. 9252-INFRMT-0021 NSWCPD DDGM BF ITB Wiring Harness Installation – Rev B
2.60. 9252-INFRMT-0022 NSWCPD RSC2 UPS Battery Pack Installation Procedure – Rev A
2.61. 9252-INFRMT-0023 NSWCPD UCC Battery Installation Procedure – Rev A
2.62. NAVSEA 9090-310G SHIPALT by Alteration Installation Team NSWCPD Installation
2.63. 4720.2F Process and Policy for Shipboard Industrial Work
2.64. S0400-AD-URM-010/TUM, Tag-Out User's Manual
2.65. S0570-AC-CCM-010/8010 Rev A, Industrial Ship Safety Manual for Fire Prevention and Response
2.66. NAVSEA DWG 320-8499816, CCS PRESSURE ZONE 1-4 VENT FAN CONT PNL for Modernization
2.67. Raychem Heat Recoverable EMI Back-shell System Connector Manufacturing Procedure Rev 4D
2.68. LM TDP 63D750325, DIU 1-3 INTERCONNECTION DIAGRAM
2.69. LM TDP 63D750328, DIU 4 INTERCONNECTION DIAGRAM
2.70. LM TDP 63D750329, DIU 5 INTERCONNECTION DIAGRAM
2.71. BSE Installation Guide, Latest Revision
2.72. 10001 OD 32382 Bonding and Grounding
2.73. 3B252B0155_DDGM_UCC_ICAS_Processor_Ripout_(SCD_88260_ERM)_Rev-

The following SIDs are provided for information only and are not for AIT installation:

2.74. SHIPALT DDG-51-70403, 185-8765814 REV A, INSTALL FUEL CONTROL SYSTEM STRUCTURAL MODS & ML
2.75. SHIPALT DDG-51-70403, 541-8765817 REV A, INSTALL FUEL CONTROL SYSTEM PIPING MODS & ML
2.76. SHIPALT DDG-51-71604, 512-8765978 REV A, DDGM MCS/DCS UPGRD AUTO HEAT STRESS SYS MECH MOD & ML
2.77. SHIPALT DDG-51-71604, 113-8765993 REV A, DDGM MCS/DCS UPGRD AMR1/GEN 3 FDN ASSY, DET & ML
2.78. SHIPALT DDG-51-71604, 113-8765994 REV A, DDGM MCS/DCS UPGRD CCS/CSMC/CIC/PLTHS FDN ASSY, DET & ML
2.79. SHIPALT DDG-51-71604, 113-8765995 REV A, DDGM MCS/DCS UPGRD ER 1 FDN ASSY, DET & ML
2.80. SHIPALT DDG-51-71604, 113-8765996 REV A, DDGM MCS/DCS UPGRD ER 2 FDN ASSY DET & ML
2.81. SHIPALT DDG-51-71604, 113-8765997 REV A, DDGM MCS/DCS UPGRD RPR LKRS FDN ASSY, DET & ML
2.82. SHIPALT DDG-51-71604, 500-8766000 REV A, DDGM MCS/DCS UPGRD UCC, RSC, & DIU MECH INSTL & ML
2.83. SHIPALT DDG-51-71604, 532-8765972 REV A, DDGM MCS/DCS UPGRD INSTALL POTW AUTOMN PP STRL MODS & ML
2.84. SHIPALT DDG-51-71604, 100-8765992 REV A, DDGM MCS/DCS UPGRD TEMP ACCESS CUT AND INCIDENTAL IMP & ML
2.85. SHIPALT DDG-51-71726, 100-8765830 REV A DDGM FULL IBS UPGRD TEMP

ACCESS CUT AND INCIDENTAL IMPACT

2.86. SHIPALT DDG-51-71726, 184-8765831 REV A, DDGM FULL IBS UPGRD FOUNDATION MOD & ML

2.87. SHIPALT DDG-51-71726, 512-8765834 REV A, DDGM FULL IBS UPGRD HVAC MOD & ML

2.88. SHIPALT DDG-51-71726, 532-8765835 REV A, DDGM FULL IBS UPGRD PIPING MOD & ML

2.89. SHIPALT DDG-51-77829, 540-8765821 REV A, INSTALL TANK SENSORS (RADAR/TDR) PIPING & STRL MODS & ML

3. REQUIREMENTS:

3.1. The AIT shall take guidance only from the AIT Manager and the OSIC for this installation. If other parties [In Service Engineering Agent (ISEA), Ship Manager Representative (SMR), Shipyard, etc.] requests services outside the scope of work, please refer them to the AIT Manager or OSIC.

3.2. The AIT shall provide a single point of contact as the On-Site AIT Lead. The AIT Lead shall coordinate with the waterfront team including the OSIC, SMR, PMR, and LMA. The AIT Lead shall also coordinate with any of the AIT's subcontractors to ensure proper team efficiency and reporting.

3.3. AIT contractor shall be responsible to coordinate with government sponsors in order to remain current on the status of all additional LAR/RLAR actions, as well as any SID revisions, that may impact the Ship Installation Drawing (SID) references and requirements of this SOW.

3.3.1. Conduct a technical review of all existing and new LAR/RLAR releases and/or SID revisions to determine relevance to this SOW.

3.3.2. Develop and submit a cost estimate (both addition and subtraction of cost) to implement any additional LAR/RLAR changes and/or SID revisions that impact requirements of this SOW.

3.3.3. Upon approval of Government, accomplish portions of LAR/RLAR changes and/or SID revisions that impact requirements of this SOW.

3.3.4. LAR/RLAR and/or SID revisions depicting additional work (or descope) that is not otherwise already included in the requirement of this SOW will be subject to equitable adjustment.

3.3.4.1. Submit one legible copy, in hard copy or approved transferrable media, of a Condition Found Report (CFR), that documents labor (hours and cost) and material expenditures of each LAR/RLAR not captured in this SOW that needs to be accomplished under 3.3.3, to the SUPERVISOR.

Each CFR is to be documented and tracked using the Ship Hindrance Tracker (SHT). An update of the SHT is to be provided to the AIT Manager, OSIC, and SMR on a weekly basis throughout the project Period of Performance.

3.4. The following requirements are applicable to all ship alterations as well as C-DR Box Management detailed in paragraph 1:

3.4.1. Prior to start of work the AIT shall review 2.3 through 2.35 in order to gain a complete understanding of quantity and type of Installing Activity Furnished (IAF) and consumable materials required to complete the installation.

3.4.2. The AIT shall procure all cable assemblies and bulk cable listed in drawings 2.3 through 2.35. This includes but is not limited to all cable, connectors, back-shells, and fittings required to install and fabricate all of the cabling/connectors for this installation. Additional details for the cable pre-fabrication are included in paragraph 3.5.

3.4.3. The AIT shall remove all equipment/cabling as required by the SIDs, 2.3 through 2.35.

3.4.4. Due to the numerous AITs onboard the ship, opportunity exists for temporary cable ID tags to be unintentionally misplaced. Ensure that all temporary cable ID tags (if utilized) are of a type that will remain attached until permanent cable ID tags are installed.

3.4.5. The AIT must practice proper housekeeping and ensure removal of all trash from working areas at the end of each day. Electronic spaces are required to be vacuumed at the end of each shift.

3.4.6. The AIT must use proper containment methods during all hot work to reduce the risk of incidents during the availability.

3.4.7. Demolition

3.4.7.1. Abatement for Hazardous materials shall be performed by the LMA prior to start of all AIT work. This includes asbestos, lead paint, chromium, and zinc.

3.4.7.2. All scrap material shall be disposed of following local requirements.

3.4.8. Accomplish equipment asset recovery detailed in the Asset Recovery List, Reference 2.43. Accomplish equipment/component removal and protective packing, utilizing ground straps and anti-static bags. Accomplish packing, crating, and shipping of removed equipment and components to the designated POCs as directed by SMR.

3.4.8.1. Material shall be individually labeled with the following information marked clearly and visibly: Stock Number, Manufactures Part Number, removed from Hull number (Ex. Removed from DDG-XX)

3.4.8.2. Like material shall be packaged together for shipment with final packaging reflecting the following: Stock Number, Manufacturers Part Number, removed from Hull number (Ex. Removed from DDG-XX), Quantity of Units/Items inside

3.4.8.3. All material shall be listed on the outside of each package with the complete part number and stock number if available

3.4.8.4. 1149 shall be sent electronically prior to shipment to the following recipients: (b) (6)(b) (6)(b) (6)(b) (6)(b) (6)

3.4.8.5. Package shall be labeled/re-labeled and shipped to the below address:
Receiving Officer FISC
Philadelphia Naval Business Center
1601 Langley Avenue Building 542E
Philadelphia, PA 19112
(b) (6)(b) (6)(b) (6)(b) (6)
(b) (6)(b) (6)(b) (6)

3.4.9. Any equipment that is to be removed and reinstalled shall be clearly identified and retained in a secure location.

3.4.10. The AIT shall fabricate and install all foundations in accordance with the SIDs, 2.3 through 2.35, Reference 2.46, and 009-12. This will include but not be limited to power panels, switches, transformers, lighting fixtures, phones, speakers and terminal boxes.

3.4.10.1. The AIT shall apply the specified paint to equipment contact surfaces of foundations installed by the AIT prior to installing the equipment.

3.4.11. All of the foundations listed in references 2.74 through 2.89 will be installed by the LMA. The mounting hardware for electrical equipment listed in references 2.74 through 2.89 shall be turned over to the AIT for mounting the equipment to the foundation.

3.4.11.1. The LMA shall accomplish all equipment access cuts and associated interference removal, reinstallation, and testing via a Work specification.

3.4.12. The AIT shall accomplish all electrical and mechanical disconnects/reconnects, bonding and grounding of equipment, shimming,

unbolting and bolting of all Electrical/Electronic Equipment in references 2.3 through 2.35.

3.4.13. The AIT shall accomplish all hot work associated with the required electrical modifications. This includes welding, burning, grinding, and all other spark producing operations that require a fire watch. This effort is required for installing new, or modifying existing cableways and foundations, and to accommodate new and rerouted cables and enclosures. Cableways may include, but not be limited to cable support brackets, collars, Multiple Cable Transits (MCTs), Multiple Cable Passageways (MCPs), stack studs, and stuffing tubes. Cableway structure that is no longer being used due to cable rip-out is required to be removed IAW 009-73.

3.4.14. The AIT shall protect all equipment for the alterations listed in paragraph 1 to prevent any damage during installation. Protection shall include fire retardant plastic, plywood or other material as needed.

3.4.15. The AIT shall procure and install filter material for all newly installed DDGM BF equipment intake louvers to protect them from the industrial environment. Prior to initial equipment power up, the AIT shall thoroughly clean all equipment internals. After initial equipment power up, the AIT shall replace the filter material weekly or as specified by the OSIC until completion of testing. If the filter material has failed, the AIT must clean the equipment's internals. After completion of testing, the AIT shall perform a thorough cleaning of the interior and exterior of all equipment.

3.4.16. The AIT shall install all electrical and fiber components in accordance with references 2.1, 2.39 through 2.42, and 2.58.

3.4.16.1. Referenced procedures must be rigorously followed to ensure the proper grounding of all cable shields.

3.4.16.2. The contractor shall ensure employees accomplishing work (e.g., installer, QA oversight, direct supervision) on fiber optic systems have accomplished Navy Shipboard fiber optic training and achieved certification IAW 009-123, paragraph 3.1.

3.4.16.3. The AIT shall submit one copy to the GEDMS ISEA in PDF or other approved electronic media form of all required reports relating to installation of cabling and termination of cabling in accordance with all listed references.

3.4.17. The AIT shall accomplish the requirements of Standard Items 009-71 and 009-

107 for new and disturbed piping systems.

3.4.18. The contractor shall maintain the Ship's Permanent Fire Zone Boundaries, IAW reference 2.65, to the extent practicable throughout the availability. This includes maintaining the capability of fire insulation where installed, fire-rated penetrations such as multi-cable transits (MCTs) and pipe penetrations, fume-tightness of the boundary, etc. At a minimum, the contractor shall seal these MCTs and pipe penetrations with fire retardant cloth when not actually installing cables or pipe through the MCTs or penetrations and at the end of each work shift.

3.4.19. The AIT shall accomplish the requirements of Standard Item 009-32, 009-11, and 009-26 of reference 2.1 for new and disturbed surfaces, lagging and insulation, and deck covering respectively.

3.4.20. The AIT shall conduct thorough cableway inspections of cableways impacted by this SOW (utilizing 009-73) and submit results to the OSIC, SMR, and AIT Manager no later than 25% of contract duration. For discrepancies found after 25%, information-only Condition Found Reports (CFRs) shall be submitted to document legacy discrepancies and as-found conditions.

3.4.21. The AIT shall conduct thorough space inspections in spaces affected by modernization removals and installations (utilizing 009-06, para 3.1.1). Results shall be submitted to the OSIC, SMR, and AIT Manager before work starts in a space. For discrepancies found after work in a space has started, information-only CFRs shall be submitted to document legacy discrepancies and as-found conditions.

3.4.22. The AIT shall work to de-conflict scheduling issues with the Shipyard, I Level personnel, other AITs on site, and subcontractors. Particular attention should be paid to the LMA's foundation installations, as these areas often require ground studs or cable studs. Efforts should be made to coordinate AIT work prior to LMA restoring paint/lagging to abated areas.

3.4.23. The AIT shall manufacture all wire markers and label plates prior to start of work in accordance with the NAVSEA FY 20 Standard Items and Reference 2.50. Wire markers shall be typed, not hand written. Cable tags shall contain the cable ID number and connector jack number (if applicable) at each end of the cable. The AIT shall manufacture and install new cable tags with associated jack numbers on all legacy cables that are reattached. Cable tag information shall be provided to the Availability Cable Manager.

3.4.23.1. All label plates shall be installed in accordance with reference 2.50 and all applicable SIDs.

3.4.24. Cable Tracking Database Requirements **(CDRL A016)**:

3.4.24.1. The AIT shall submit a written/typed report to the SMR and OSIC at the end of each shift.

3.4.24.2. The AIT shall update the Cable Tracking Database daily to reflect the status of the continuity tests of each electrical/coax conductor in accordance with reference 2.1, 009-73.

3.4.24.3. Using the cable tracking database, the AIT shall ensure that all floaters, cable tags, cable cut sheets, and required material for the termination and quality control of each cable is kitted at least fourteen (14) days prior to the start of installation.

3.4.25. The AIT shall open, close, and test each multiple cable transit as required to accomplish the requirements of this Statement of Work. Note: Transit close and test is to be coordinated with the Availability Cableway Manager referenced below:

3.4.25.1. The Availability Cableway Manager will be responsible for coordinating, integrating and documenting all modernization activity for MCT (Multi- Cable Transit) and MCP (Multi-Cable Penetration), cableway removals, reroutes, installations and modifications impacted by all SEA21 PMS407 modernization Shipalt installations.

3.4.25.2. The AIT shall be responsible for tracking all MCT's openings, closures, and testing related to the alterations referenced in paragraph 1 until completion of installation and testing.

3.4.25.2.1. For each MCT opened, the AIT shall submit a WAF.

3.4.25.2.2. The AIT shall close all MCTs listed in references 2.3 and 2.4 as well as any additional MCTs/MCPs opened by the AIT.

3.4.26. The AIT shall complete all AIT test procedures and support the Government ISEAs with all ISEA test procedures through HM&E Sea Trials.

3.4.26.1. The AIT shall accomplish all testing requirements of the AIT Test Procedure List, reference 2.53 as well as all applicable Test Note requirements of the SIDs, references 2.3 through 2.35. The AIT Test Procedure List details which tests are AIT led and which tests are ISEA led with AIT support. The AIT shall only perform testing when NSWCPD ISEA is present to witness testing. When NSWCPD ISEA is absent, testing shall only be performed if prior written approval is provided by NSWCPD.

3.4.26.1.1. The AIT shall anticipate the need for a test and groom team of up to 20 Technicians for the duration of HM&E testing to conduct test procedures and to resolve identified test discrepancies.

3.4.26.2. The AIT shall assist with the coordination between the ship and the test team to ensure all scheduled testing is properly briefed, the required shipboard equipment and support systems are available to support each test, and the proper personnel (both Government and AIT) are scheduled to be on-site to perform each test.

3.4.26.3. The AIT shall provide the equipment listed in the AIT Special Test Equipment document, reference 2.57. Special equipment referenced in 2.57 may require a long lead time.

3.4.26.4. The AIT shall procure all fuses per the MCS Fuse List, reference 2.55 prior to start of testing. Any leftover fuses and LEDs shall be turnover to ship forces.

3.4.26.5. The AIT shall provide technical support services for repairs and alterations of legacy shipboard systems, that interface with the alterations listed in this Statement of Work (SOW), in order to ensure proper integration and operation of newly installed equipment.

3.4.26.5.1. The AIT shall Accomplish Legacy Wiring Corrections in accordance with guidance and Work Package provided in Reference 2.54.

3.4.26.5.2. The AIT shall provide a team for the troubleshooting and correction of Ship's Problem Indication Reports (SPIRs). SPIRs are normally discovered during the testing phase and can be related to both legacy and new installations. The AIT shall provide an up to date status on all assigned SPIRs when requested.

3.4.26.5.3. The AIT shall assist in testing the Damage Control system. This will include testing of each DC sensor, identifying functional discrepancies, troubleshooting, and making minor repairs. In addition, the AIT shall identify any defective circuit cards or channels and any DC legacy items.

3.4.26.5.4. AIT shall procure the extended jackscrew hardware listed in Reference 2.55. The AIT shall assist the MCS ISEAs to replace connector screws on plugs highlighted in the vendor drawings, References 2.68 through 2.70 with extended jackscrews.

3.4.26.6. The AIT shall provide a 1) Test Lead, a 2) WAF/EWAF Coordinator, and a 3) Power Coordinator to perform the following requirements. The

personnel may be AIT Contractor or approved AIT Subcontractor:

3.4.26.6.1. The Test Lead shall support testing of newly installed DDGM BF propulsion plant equipment and be responsible for the interface between new and legacy equipment. This Test Lead shall be responsible for coordination of the testing with other AIT test technicians. The Test Lead shall generate an electronic daily test status send it to the ISEA team as well as the on-site Test Coordinator and SMR.

3.4.26.6.2. The AIT WAF/EWAF coordinator (WAFCOR) shall be the single point-of-contact between the LMA WAFCOR and Ship's force WAF personnel for work planning and execution in support of modernization. AIT WAFCOR shall submit WAFs in a timely manner, keeping in mind turnaround time for processing WAFs, to support the work required to maintain schedule. WAFs shall only be cleared once the team lead or WAFCOR have verified that the work is complete IAW the verbiage and scope of the WAF

3.4.26.6.3. The AIT shall provide a Power Coordinator to assist with the coordination between ships force, LMA, AITs, SMR, and the test team to ensure all equipment installed has power available for testing based on reference 2.1. This person will be responsible for ensuring all parties are knowledgeable of equipment tag-out status, working with the WAF/EWAF Coordinator, working with the Test Coordinator, and briefing all parties concerned on the impact to the test schedule, should power not be available for testing.

3.4.26.6.4. All test leads shall work with the NSWCPD ISEA, OSIC, Test Coordinator and SMR while planning test efforts and will assist in the resolution of any discrepancies as they may occur.

3.4.26.7. The AIT shall provide an adequate number of communication devices for up to 15 test/troubleshooting teams, with charging capabilities and additional batteries for the completion of testing requirements. The AIT shall be responsible for replacement of any lost or damaged communication devices. Communication devices shall be available to the NSWCPD Test Coordinator at the beginning of the installation through completion of testing.

3.4.26.8. The NWCPD Test Coordinator or SMR shall provide all required test procedures in hardcopy format for completion by the AIT.

3.4.26.8.1. The AIT shall submit copies of all completed test procedures to SMR, ISEA, and Test Coordinator.

3.4.27. The AIT shall provide copies of the Condition Reports to the OSIC, AIT Manager, and SMR as conditions are noted and compilation of all reports at the completion of the installation. All Condition Reports must be submitted with 24 hours of an incident occurring. Any Condition Reports that could require equitable adjustment must be submitted with an estimate within three days of the incident occurring.

3.4.28. The AIT contractor shall procure, ship and provide their own onsite twenty foot conex boxes as required to support the installations (Six Conex Boxes Max & Two with Power). One of the provided conex boxes shall be designated for the use of INCO Spare storage. The LMA will provide laydown areas to accommodate the AIT conex boxes, 120VAC power to the conex boxes if required and handling services at the onsite laydown are such as cranes, riggers and fork-trucks to unload, position and reload the boxes.

3.5. Cable Prefabrication and Procurement Requirements:

3.5.1. The AIT shall procure all cable assemblies and bulk cable listed in drawings 2.3 through 2.35. This includes but is not limited to all cable, connectors, back-shells, and fittings required to install and fabricate all of the cabling/connectors for this installation.

3.5.1.1. The AIT shall perform as much prefabrication of cable assemblies off ship as possible yet have a cable assembly that can be installed onboard a Naval Vessel. NSWCPD is relying on the AIT's expertise in ship cable installation to determine, when appropriate, which end of a cable assembly to prefab.

3.5.1.2. The AIT shall present NSWCPD with their plan for prefab in the form of a 'MASTER PREFAB CABLE MATRIX' tab in the Microsoft Excel Material Tracking Database (**CDRL A011**) for approval as part of the AIT's proposal package. AIT's MASTER PREFAB CABLE MATRIX shall include a complete listing of all new cable assemblies contained in the SHIPALT electrical drawings 2.3 through 2.35 as well as all existing assemblies being modified by these same drawings, including all LAR/RLARs. For each identified cable assembly, termination kit or loose item the MASTER PREFAB CABLE MATRIX shall contain the following minimum information:

1	SHIPALT	4	Cable Type		
2	ELECTRICAL DWG No & REV	5	PREFAB ASSY? (Y/N)	7	LAR/RLAR Impacted
3	CIRCUIT NO.	6	PREFAB END (UNIT A, UNIT B or both A/B)	8	NOTES/COMMENTS

3.5.1.3. Each SHIPALT cable type (copper or fiber optic) must identify cable type and which end will be prefabbed (unit A or unit B).

3.5.1.4. AIT shall highlight any material in the MASTER PREFAB CABLE MATRIX affected by a LAR/RLAR and summarize the change in the NOTES/COMMENTS section of the Matrix (i.e. 'length change 100ft to 145ft', 'connector change MS3106R16 10P to MS3406D10-11P', etc.).

3.5.2. Prefabrication of cable assemblies shall be IAW the following prefab selection criteria:

3.5.2.1. Copper Cable Assembly Prefab Criteria:

- Prefab cable assemblies having a cable length equal to or less than 200ft when one end requires a connector.
- Do not prefab any cable assemblies greater than 200ft
- Do not prefab any HELIAX cable assemblies
- Do not prefab any coax cable assemblies
- Prefabrication of Cat 5 RJ45 cables will be fabricated in the proper positioning for connection to the end user.
- Prefabrication shall include termination kits for existing cables being modified as specified in the drawing.
- Do not prefab any cable assemblies requiring the use of retained hookup information for pinout of connector.
- Prefabricated cable assemblies shall be terminated on one end only.
- Do not prefab any cable assemblies with EMP fittings.

3.5.2.2. Fiber Optic Cable Assembly Prefab Criteria:

- Regardless of length, prefabricate all fiber optic cables with one connector assembly.
- Do not prefabricate cable ends with ST connectors.

3.5.3. Copper Cable Assembly Requirements:

3.5.3.1. AIT shall adhere to the requirements of 9252-INFRMT-0020 NSWCPD Cable Prep Guidance – Rev D and MIL-STD-2003A documentation for cable prep of all prefab cable assemblies manufactured using back-shell kits containing soft (i.e. heat-shrink/cold-shrink) boots. AIT shall install all back-shell components onto the cable assembly IAW MIL-STD-2003A Cable Prep documentation but shall not shrink the overall shield solder ring or the back-shell heat-shrink boot. These will be heat-shrinked in place by the installing activity on board the ship after cable installation.

3.5.4. Fiber Optic Cable Assembly Requirements

3.5.4.1. AIT shall adhere to the requirements of MIL-STD-2042B documentation for cable prep of all prefab cable assemblies

manufactured using back-shell kits containing soft (i.e. heat-shrink/cold-shrink) boots. AIT shall install all back-shell components onto the cable assembly IAW MIL-STD-2042B Cable Prep documentation but shall not shrink the back-shell heat-shrink boot. These will be heat-shrinked in place by the installing activity on board the ship after cable installation.

3.5.4.2. All fiber optic cable assemblies shall be manufactured such that each termini and is polished to achieve a Domed PC Polish IAW MIL-STD-1678-5. For single mode termini an enhanced end face polish shall be achieved.

3.5.5. All prefab cable assemblies shall be kitted by SHIPALT on appropriately sized cable reels or in manageable sized coils such that the cable minimum bend radius is not violated. Any prefab cable assembly kitted on a cable reel shall have the terminated cable end on the inside of the spool.

3.5.6. All fiber optic (FO) cable assemblies having a cable length of 100ft or more shall be kitted on appropriately sized 3 flange cable reels with the terminated end of the cable on the inside of the cable spool and the FO connector protected between the 2nd and 3rd flanges. FO cable assemblies having a cable length of less than 100ft shall be coiled and placed in individual cable boxes.

3.5.7. The AIT shall provide individual termination kits to the shipboard installer for each unterminated cable end of each new cable assembly and for each cable end of existing cable assemblies being modified by the SHIPALT electrical drawings and LARs/RLARs. Termination kits shall be in the form of a clear bag (recommended size: 9" x 12" clear zip-lock bag) containing each of the following:

3.5.7.1. All designated material (i.e., connector, backshell, termini, bulkhead adapter, etc.) required for termination of the unterminated cable end by the field installation activity.

3.5.7.2. A copy of the WCL sheet(s) required for termination of the non-terminated cable end.

3.5.7.3. A cover sheet that clearly identifies the termination kit, its contents and the circuit (i.e., cable assembly) for which it is intended.

3.5.7.4. Termination kit cover sheets shall be clearly visible through the clear bag and shall contain the following minimum required information:

1	SHIP NAME & DESIGNATION
2	SHIPALT
3	ELECTRICAL DWG NO. & REV

4	CIRCUIT NO.
5	UNIT A OR B (FROM WCL FOR UNTERMINATED CABLE END)
6	UNIT NAME UNTERMINATED CABLE END WILL CONNECT TO
7	COMPARTMENT NAME UNTERMINATED CABLE END WILL CONNECT TO
8	COMPARTMENT NO.
9	CABLE TYPE
10	CABLE ITEM NO.
11	CABLE LENGTH
12	LISTING OF ALL GFM/HSC MFR PNs IN TERMINATION KIT

3.5.7.5. Termination kits shall be kitted by SHIPALT electrical drawing and sorted alpha-numerically in boxes by 'CIRCUIT NO.' for ease of locating. Each termination kit box shall be clearly marked with SHIP NAME & DESIGNATION, SHIPALT, ELECTRICAL DWG NO & REV, and range of CIRCUIT Numbers contained in each box (i.e., "C-6TV4-1 thru LC41-1L-B6(2)")

3.5.8. Bulk Cable Procurement:

3.5.8.1. All bulk cable shall be kitted on appropriately sized cable spools or in manageable sized coils such that the cable minimum bend radius is not violated. Each cable spool or coil shall be kitted by SHIPALT and identified by SHIPALT, DRAWING NO & REV, CABLE TYPE & ITEM NO, and CABLE LENGTH. Each bulk cable spool shall be only used for one drawing or item number. The AIT shall not mix multiple drawings or items on any piece of bulk cable.

3.5.9. Cable Testing Requirements:

3.5.9.1. Copper Testing:

3.5.9.1.1. The AIT shall test all copper prefab cable assemblies and provide OQE documentation summarizing the results of each required test. OQE Documentation shall be organized in a QA Binder by SHIPALT electrical drawing and sorted alpha-numerically by circuit number. Included in the QA Binder for each prefab cable assembly shall be each of the following:

i. New cable data package for all copper cables as provided by the cable manufactures/suppliers IAW NAVSEA STANDARD ITEM 009-73
ii. Connector Fabrication Sheets completed and signed by a qualified person as defined in NAVSEA STANDARD ITEM 009-73 responsible for terminating and testing the prefab cable assembly
iii. Copper Prefab Cable Assembly Test Sheets showing

iv. Continuity of each conductor through end to end resistance measurements of each terminated conductor
v. Insulation Resistance measurement results of each conductor relative to all other conductors and ground
vi. The AIT's OQE Documentation shall be capable of compiling connection and test information into a connection/test report. This report shall include percentages of cables verified, connection completed, qualified person completing hook-up and qualified person completing continuity test. AIT shall retain all OQE documentation for a period not less than six (6) months after the end of the ship's Availability. AIT shall provide OQE documentation if/when requested by BIW.

3.5.9.1.2. Each copper prefab cable assembly shall be 100% tested IAW NAVSEA STANDARD ITEM 009-22.

3.5.9.2. Fiber Optic Testing:

3.5.9.2.1. The AIT shall test all fiber optic prefab cable assemblies and provide OQE documentation summarizing the results of each required test. OQE Documentation shall be organized in a QA Binder by SHIPALT electrical drawing and sorted alpha-numerically by circuit number. Included in the QA Binder for each prefab cable assembly shall be each of the following:

i. New cable data package for all fiber optic cables as provided by the cable manufactures/suppliers IAW NAVSEA STANDARD ITEM 009-73
ii. Connector Fabrication Sheets completed and signed by a qualified person as defined in NAVSEA STANDARD ITEM 009-73 responsible for terminating and testing the prefab cable assembly
iii. Fiber Optic Prefab Cable Assembly Test Sheets showing
iv. Method 6C1 Insertion Loss measurement for each fiber optic link
v. Method 6K1 Return Loss measurement for each single mode fiber optic link
vi. Machine vision visual end face results
vii. Interferometric end face geometry results
viii. The AIT's OQE Documentation shall be capable of compiling connection and test information into a connection/test report. This report shall include percentages of cables verified, connection completed,

qualified person completing hook-up and qualified person completing continuity test. AIT shall retain all OQE documentation for a period not less than six (6) months after the end of the ship's Availability. AIT shall provide OQE documentation if/when requested by BIW.

ix. Fiber Optic Prefab Cable Assembly Test Requirements

3.5.9.3. Each fiber optic prefab cable assembly shall be 100% tested IAW MIL-STD-2042 and NAVSEA STANDARD ITEM 009-73 and include the following requirements:

i. Visual inspection, tested using MIL-STD-2042 Method 6A1
ii. All fiber optic links shall be Insertion Loss tested using MIL-STD-2042 Method 6C1. Maximum allowable Insertion Loss per link shall be 0.75dB.
iii. All fiber optic SM connectors and termini shall be Return Loss tested using MIL-STD-2042 Method 6K1. Minimum cable assembly return loss shall be 40dB.
iv. Each termini end face shall be visually inspected using machine vision with industry standard visual inspection criteria for SM and MM fibers
v. Each termini shall have its end face geometry measured using an interferometer to ensure a proper Domed PC Polish end face geometry is achieved on all termini and ST connectors IAW MIL-STD-1678-5 end face geometry specifications

3.6. Alteration Specific Requirements:

3.6.1. S/A 70403K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.5 through 2.7, as well as all other applicable references.

3.6.1.1. For S/A 70403K, the LMA will be responsible for accomplishing references 2.74 and 2.75.

3.6.2. S/A 71604K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.8 through 2.16, as well as ones identified in the BIW Website Live Data Report.

3.6.2.1. For S/A 71604K, the LMA will be responsible for accomplishing references 2.76 through 2.84.

3.6.2.2. All wiring between the Data Interface Unit (DIU) connector and the

end device shall be completed in accordance with dates listed in the critical path equipment turnover schedule, Reference 2.2.

3.6.2.3. DDGM BF MCS equipment is designed as a floating system. As such, for S/A 71604, inadvertent grounding prevents safe and proper operation of the system. The installer shall practice proper cable fabrication/insulation techniques as specified in 2.39. Preferred methods shall be utilized when following 2.39. The installer shall utilize 2.58 to supplement the methods described in 2.39

3.6.2.4. Where shrink-boot back-shells are being used, cables should be connectorized and pinned. Over-shields and back-shells must not be installed until the pinning has been completed and tested satisfactorily.

3.6.2.5. All connectors utilizing a 45-degree or 90-degree back-shell shall be lockwired. Back-shells shall only be lockwired once testing has proven these components to be functional and of sound quality

3.6.2.6. To prevent damage, monitors shall be removed from UCCs and ECs prior to being rigged onto the ship. Monitors shall be protected and stored in a secure location until installation is directed by the OSIC/SMR

3.6.2.7. For DIUs 4 and 5, cabling comes from beneath the unit. Prior to rigging the DIUs to the ship, the AIT shall route the cables back into the cabinet to avoid damage to the cable harnesses. Typically, doors are removed and cables draped inside the DIU.

3.6.2.8. When installing UPS batteries in MCS equipment, care must be taken not to bend mounting rails.

3.6.2.9. For the ICAS Processor Ethernet Port, dust caps shall be added on jack 2 & 3 of UCC 1 & 2 (for a total of 4 dust caps). 2 VME slot covers shall also be added to the ICAS Processor along with screws and retainers (4 of each).

3.6.3. S/A 71615K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, Reference 2.17, as well as all other applicable references.

3.6.3.1. For S/A 71615K, all work necessary to install this alteration will be completed by the AIT.

3.6.3.2. Consult with OSIC/SMR or ISEA if camera viewing angle will be obstructed. Some deviation is acceptable but requires prior approval.

3.6.4. S/A 71726K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.18 through 2.20, as well as all other applicable references.

3.6.4.1. For S/A 71726K, the LMA will be responsible for accomplishing references 2.85 through 2.88.

3.6.4.2. The AIT shall verify that all cables can be connected simultaneously. Due to the angles of the connectors and back-shells, if they are not built properly, then all cables will not fit.

3.6.4.3. To prevent damage, all console mounted monitors shall be removed prior to being rigged onto the ship. Monitors shall be protected and stored in a secure location until installation is directed by the OSIC/SMR.

3.6.5. S/A 73091K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.21 through 2.26, as well as all other applicable references.

3.6.5.1. For S/A 73091K, all work necessary to install this alteration will be completed by the AIT.

3.6.5.2. The AIT shall follow the BSE Installation Guide, Reference 2.71.

3.6.5.3. The AIT shall procure the required test equipment listed in Reference 2.57. The AIT shall accomplish post termination Bandwidth Testing of the GEDMS Raychem Special CAT-5 cable IAW Test Procedure 42A431C001.

3.6.5.3.1. The NWCPD Test Coordinator or SMR shall provide the required test procedure in hardcopy format for completion by the AIT. The AIT shall submit copies of the completed test procedures to SMR, ISEA, and Test Coordinator.

3.6.5.3.2. The cable tracking database detailed in Paragraph 5.6 shall be updated daily to reflect status of bandwidth tests.

3.6.6. S/A 77427K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.27 through 2.30, as well as all other applicable references.

3.6.6.1. For S/A 77427K, all work necessary to install this alteration will be completed by the AIT.

3.6.7. S/A 77829K - AIT shall accomplish the electrical connection of the DIUs and the cable installations detailed in references 2.31 and 2.32 as well as support the post installation testing of this system.

3.6.7.1. The AIT shall support any troubleshooting/repair efforts to the installed system that are found during ISEA testing relating to S/A 77829K.

3.6.7.2. The LMA shall accomplish the structural installation it its entirety IAW 2.89.

3.6.7.3. The AIT shall accomplish the electrical installation IAW 2.31 through 2.32 in its entirety with the exception of the electrical removals in pages 3 through 6 of reference 2.31, which shall be accomplished by the LMA.

3.6.7.4. The NSWCPD ISEA and AIT Test Team will accomplish the Post Installation Testing.

3.6.8. S/A 84226K - AIT shall accomplish the DDGM BF upgrade of all appropriate cabling and equipment according to the SIDs/LARs, References 2.33 through 2.35, as well as all other applicable references.

3.6.8.1. For S/A 84226K, all work necessary to install this alteration will be completed by the AIT.

3.6.9. C-DR Box Connectorization (Approximately 40 C-DR Boxes) – AIT shall terminate all cables leading to the C-DR boxes. This includes those run by other installing activities. The other installing activities shall provide material required for termination.

3.6.9.1. Tasks shall include procurement of missing terminal boards, installation of new terminal boards or hardware. The AIT shall properly seal unused penetrations, dress existing cables, and provide proper shielding or ground isolation.

3.6.9.2. The AIT shall perform continuity testing of all new and re-connected cables terminated in C-DR Boxes.

3.6.9.3. The AIT shall remove all unused legacy cables and plug openings as needed.

3.6.9.4. The AIT shall report weekly on the status of each C-DR Box with the following information:

3.6.9.4.1. Overall Completion, New Cables Installed at each Box, Cables Terminated at each Box, Cables Tested at each Box, notes

as to which boxes are ready for inspections or have been tagged in, and listing any issues encountered with the C-DR box connections.

4. INFORMATION/MATERIAL/SERVICES:

Government Furnished- **The GFM will be managed and coordinated with NSWCPD COR representative**

4.1.

4.1.1. NSWCPD will provide a Shipboard Integrated test plan which will be used to test functionality of all relocated/systems/equipment

4.1.2. All GFM listed in Reference 2.37, with the exception of cable assemblies as detailed in Paragraph 3.4.2, shall be provided to the AIT. The AIT shall take receipt, uncrate, and conduct receiving inspection with a Government Representative.

4.1.2.1. The AIT shall copy the waterfront team (SMR and OSIC) on all requests for GFM material from the LMA Warehouse.

4.1.3. The following services are to be provided by the Government via Shipyard:

4.1.3.1. Temporary services to include: ventilation, compressed air, 440VAC & 120VAC power, and lighting.

4.1.3.2. Crane and rigging services.

4.1.3.3. Laydown area for placement of Conex and/or tool boxes.

4.1.3.4. Should services planned to be provided by the shipyard or any other entity not occur, asking the prime contractor to provide such services will require a contractual modification.

4.1.3.5. See Reference 2.38 for all services to be provided.

4.2. AIT Furnished

4.2.1. The AIT shall provide all applicable Installing Activity Furnished (IAF) Material as detailed on the SIDs, with the exception of the drawings listed FOR INFORMATION ONLY. The AIT shall also procure all mounting material, miscellaneous, incidentals, and consumable material required to complete the installation.

4.2.2. The AIT shall procure all cable assemblies listed in drawings 2.3 through 2.35. This includes but is not limited to all cable, connectors, back-shells, and fittings required to install and fabricate all of the cabling/connectors for this installation.

5. DELIVERABLES:

5.1. As required by 009-60 of 2.1, the AIT shall provide a detailed installation schedule (MS Project POA&M) that supports the availability milestones and the equipment turnover dates detailed in 2.2, two weeks after award of contract. The AIT will update this POA&M on a weekly basis and more frequently as schedules change, workflow problems occur, or other conditions warrant. This POA&M shall be provided to Ship's Force, LMA, Regional Maintenance Centers (RMCs), NSWCPD representatives, and other activities as necessary to ensure that proper support is available and interference or delays are minimized. The updated POA&M shall be submitted to NSWCPD personnel no later than noon the day prior to the RMC weekly progress meeting. Accurate planning of individual tasks is critical to the overall success and coordination of work with other installing activities **(CDRL A003)**.

5.2. Using NAVSEA FY 20 Standard Item 009-004 and References 2.62 & 2.63, the AIT shall develop a QA Workbook to be maintained and updated on-site. This Workbook shall be used to keep an in-process record of Quality Control Inspections and be provided to NSWCPD for review, within sixty (60) days of contract award or 90 days prior to the availability start, whichever date comes first. A completed copy of the QA Workbook shall be provided to NSWCPD Personnel within two weeks after completion of availability. **(CDRL A004)** The QA Workbook shall be formatted as follows:

- 5.2.1. Sect. 1 Alteration Description
- 5.2.2. Sect. 2 Personnel Qualifications and Certifications
- 5.2.3. Sect. 3 Procedures Objective Quality Evidence (OQE)
- 5.2.4. Sect. 4 Installation POA&M
- 5.2.5. Sect. 5 Ship Installation Drawing (SID) List
- 5.2.6. Sect. 6 Test and Inspection (T&I) Plan – This plan should identify areas requiring In-Process inspections by annotating steps as Inspection (I), Verification (V), or Government (G) Points. This plan shall also incorporate all testing requirements.
- 5.2.7. Sect. 7 Test & Inspection Records

5.3. A Financial Status Report shall be assembled by the AIT every two weeks and shall be submitted to the NSWCPD AIT Manager no later than noon the day prior to the weekly progress meeting. This report shall detail the planned hours burned each week versus the actual hours in order to adequately track progress and expenditure. **(CDRL A002)**

5.4. The AIT shall attend all daily/weekly production meetings and the daily safety walkthrough as well as provide weekly physical progress report detailing the installation status to the OSIC and SMR no later than noon the day prior to the weekly progress meeting during the installation and cable testing phases **(CDRL A007)**.

5.5. Prior to start of the availability and utilizing the SIDs, GFM list (Reference 2.37), and DDG Mod Critical Path Equipment/Cable & Test Requirement Turnover Schedule (Reference 2.2), the AIT shall develop a material tracking list detailing material required (GFM, IAF, & Cable Assemblies) to complete the installation and testing.

5.5.1. This database shall include material nomenclature, GFM, IAF status, part number, quantity, location, tracking number, and person issued to. This database shall be updated weekly or as material status changes and submitted to NSWCPD Personnel.

5.5.2. As stated in paragraph 3.5, the AIT shall provide a cable pre-fabrication report weekly to NSWCPD.

5.5.3. Upon completion of the installation, an electronic copy of this database shall be submitted to NSWCPD. The AIT shall maintain a list of all material issued to the ship using a DD 1149 Form. AIT shall provide copies of the DD 1149 Forms to NSWCPD OSIC or AIT Manager. **(CDRL A011)**

5.6. The AIT shall create a Microsoft Access/Excel Cable Tracking Database utilizing References 2.3 through 2.35. This database shall be used to detail the status of all hook-up sheets, wire markers, cable/coax/copper connections, testing progress, as well as the status of any MCTs/MCPs/Boundary Penetrations. This database shall be capable of compiling connection and test information into a connection/test report. This report shall include percentage of cables verified, continuity tested, insulation resistance tested, cut into equipment, connection completed, electrician completing hook-up and electrician completing continuity test. **(CDRL A016)**

5.6.1. The applicable section of the connection/testing report of 5.6 shall be posted on each piece of equipment (i.e. RSC, DIU, UCC etc.). During hook-up and testing, the electrician shall update this report to reflect progress of work accomplished on a daily basis.

5.6.2. This Database shall identify each system and cable by its designation, installing activity, boundary penetrations, work item, project number or alteration number and associated key event and milestone. List shall contain an assessment of progress by key steps, i.e., "cable removed", "cable run", "boundaries satisfactorily tested", "connectorized", "banded", "tested", "connected', and "complete". Progress shall also be assessed by overall percentage of completion.

5.6.3. This Database shall be sortable by system, component, cable termination points, installing activity, work item, project number or alteration number or associated key event and milestone.

5.6.4. This database shall be delivered to the SMR and OSIC thirty (30) days prior to start of installation and daily during the core alteration installation and testing.

The completed version of this database shall be provided to the SMR, OSIC, and AIT Manager at the completion of installation and testing.

5.6.5. Using the cable tracking database, the AIT shall ensure that all floaters, cable tags, cable cut sheets, and required material for the termination and quality control of each cable is kitted at least fourteen (14) days prior to the start of installation.

5.7. The AIT shall turn over 2 sets of red-lined drawings to the AIT Manager or OSIC for all completed alterations on USS MASON (DDG 87) at the end of the availability within 14 days of completion. One set is a hard copy that will be delivered to the ship. The other set must be scanned and electronically sent to the AIT Manager for transmittal to the Planning Yard. **(CDRL A008)**

6. PLACE OF PERFORMANCE

6.1. Norfolk, VA is the anticipated location of this installation.

6.2. The AIT shall also price options for the place of performance to be Mayport, FL, Pascagoula, MS, or Philadelphia, PA. If the Place of Performance changes from Norfolk, VA, we shall use these estimates to adjust the award.

7. SCHEDULE AND HOURS OF WORK

7.1. Installation schedule will be determined by the schedule of the USS MASON (DDG 87). The availability is tentatively scheduled for 02/03/2020 through 05/22/2021.

7.2. The AIT must meet the DDG Mod Critical Path Turnover Schedule, for DDG 87 USS MASON (Reference 2.2).

7.3. The work hours shall be Monday through Saturday from 0600 to 1630. These hours may adjust based on progress during the installation.

7.4. Overtime is approved for the AIT in order to complete the installation and testing within the periods of ship availability. Coordination with the AIT manager is required.

8. CONTRACTING OFFICER'S REPRESENTATIVE (COR):

8.1. The COR for this contract is (b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)(b) (6)

9. SUBJECT MATTER EXPERT (SME):

9.1. The SME for this installation is (b) (6)(b) (6)(b) (6)(b) (6)(b) (6) (b) (6)(b) (6).

10. PERIOD OF PERFORMANCE:

10.1. Date of Award through 03/12/2021.

11. NSWCPD ELECTRONIC COST REPORTING AND FINANCIAL TRACKING (ECRAFT) SYSTEM

11.1. The Contractor is required to upload their Contractor's Funds and Man-hour Expenditure Reports in the Electronic Cost Reporting and Financial Tracking (eCRAFT) System. The eCRAFT Reports must use the standardized labor categories identified in Section C - Statement of Work.

11.2. The Contractor's Funds and Man-hour Expenditure Report reports contractor expenditures for labor, materials, travel, subcontractor usage, and other contract charges.

11.3. The contractor agrees to provide supporting accounting system reports, at the Contracting Officer's request, based on the review of the invoice documentation submitted to eCRAFT. This documentation will include reports such as the Job Summary Report (or equivalent), Labor Distribution Report (or equivalent), and General Ledger Detail Report (or equivalent). Supporting labor data provided must include unburdened direct labor rates for each employee and labor category. Cost breakdowns for ODCs, Materials, travel and other non-labor costs must be at the transactional level in sufficient detail so the Government can review allocability to the contract/task order. Indirect costs allocated to direct costs must be shown at the lowest level of detail sufficient to reconcile each indirect rate to the appropriate allocation base.

11.4. On invoices containing subcontractor costs, the prime contractor agrees, at the Contracting Officer's request, to attach as supporting documentation all invoices received from subcontractors, unless the subcontractor submits invoices directly to the CO and COR. This requirement applies to all subcontract types (Cost, FFP, etc.).

11.5. The contractor shall submit its reports on the same day it submits an invoice in iRAPT. The costs reflected in eCRAFT shall be the same as those in iRAPT. eCRAFT acceptance/rejection will be indicated by e-mail notification from eCRAFT.

11.6. The eCRAFT Periodic Report Utility (ePRU) is an Excel tool used to facilitate generating reports of expenditures-against-cost contracts. The generated XML files will then be submitted by the ePRU tool via email to NUWC_NPT_eCRAFT.FCT@navy.mil for submission into the eCRAFT Database Management System.

11.7. The ePRU spreadsheet and user manual can be obtained from the NUWC Division Newport Contracts Home Page under eCRAFT information at: http://www.navsea.navy.mil/Home/WarfareCenters/NUWCNewport/Partnerships/Commercial-Contracts/Information-eCraft.

12. ENTERPRISE-WIDE CONTRACTING MANPOWERREPORTING APPLICATION (ECMRA)

12.1. "The Contractor shall report Contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the [NAMED COMPONENT] via a secure data collection site. Contracted services excluded from reporting are based on Product Service Codes (PSCs). The excluded PSCs are:

(1) W, Lease/Rental of Equipment;

(2) X, Lease/Rental of Facilities;
(3) Y, Construction of Structures and Facilities;
(4) D, Automatic Data Processing and Telecommunications, IT and Telecom-Telecommunications Transmission (D304) and Internet (D322) ONLY;
(5) S, Utilities ONLY;
(6) V, Freight and Shipping ONLY.

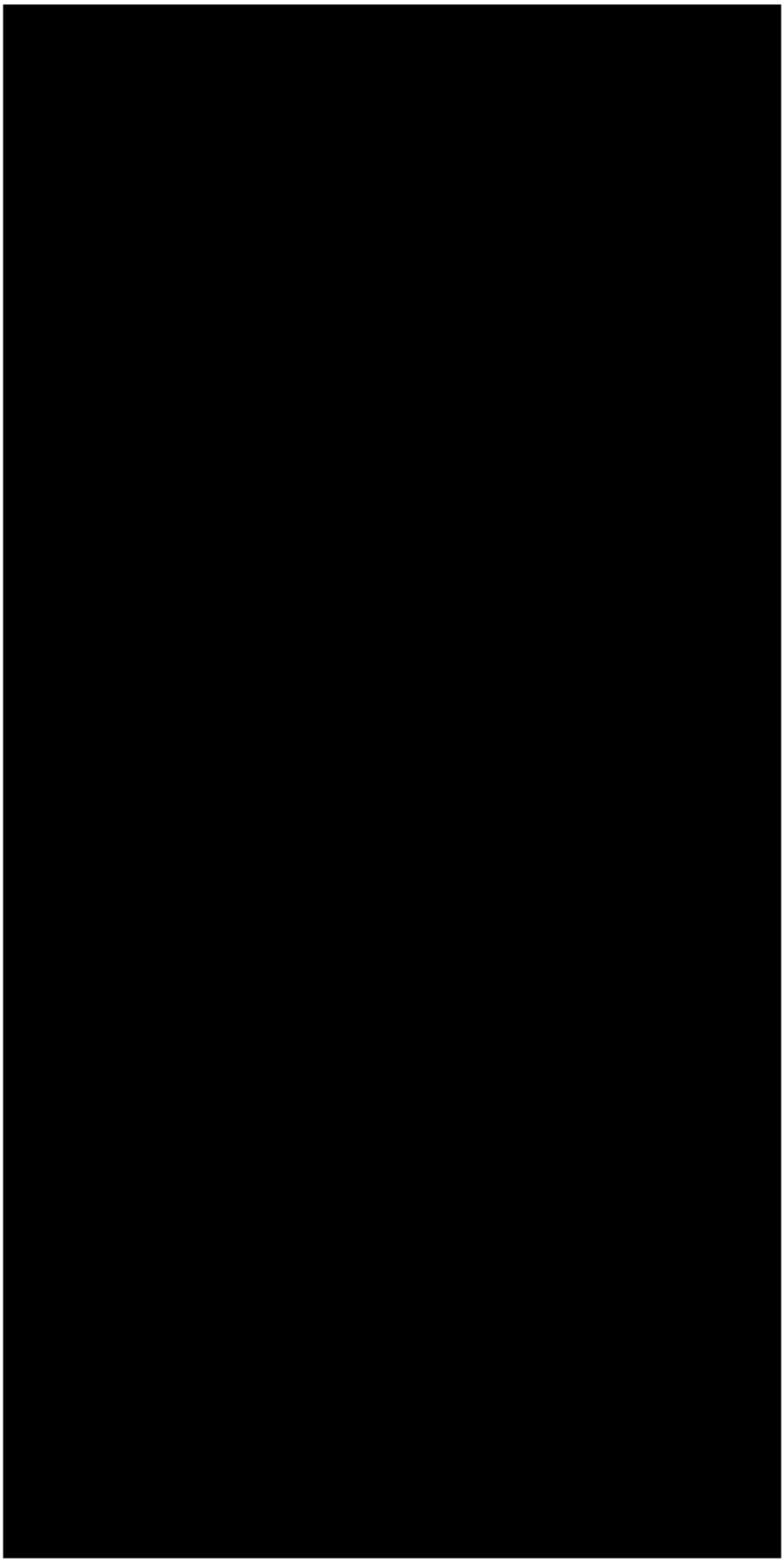
12.2. The Contractor is required to completely fill in all required data fields using the following web address https://doncmra.nmci.navy.mil.

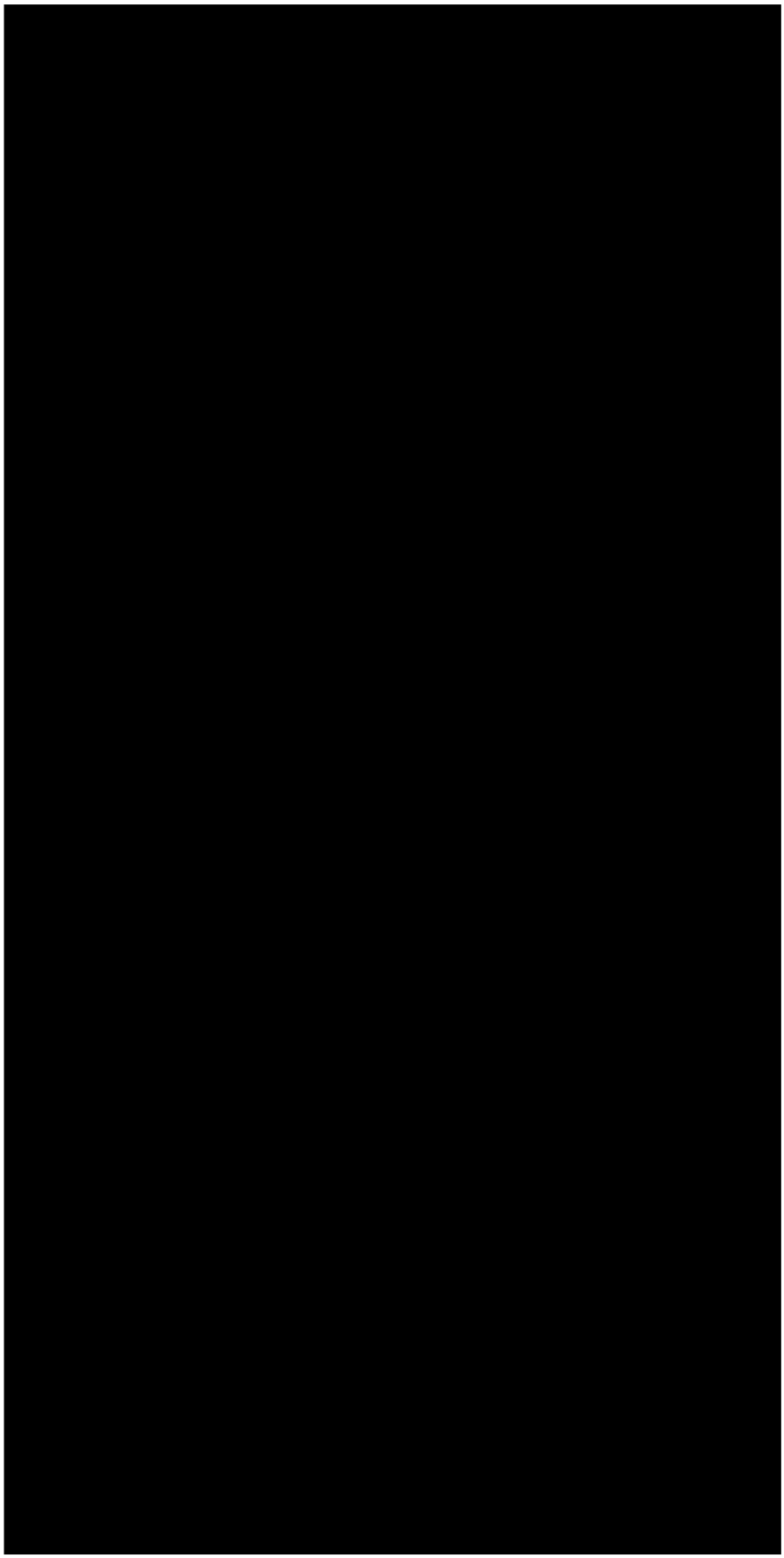
12.3. Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year. Contractors may direct questions to the help desk, linked at https://doncmra.nmci.navy.mil.

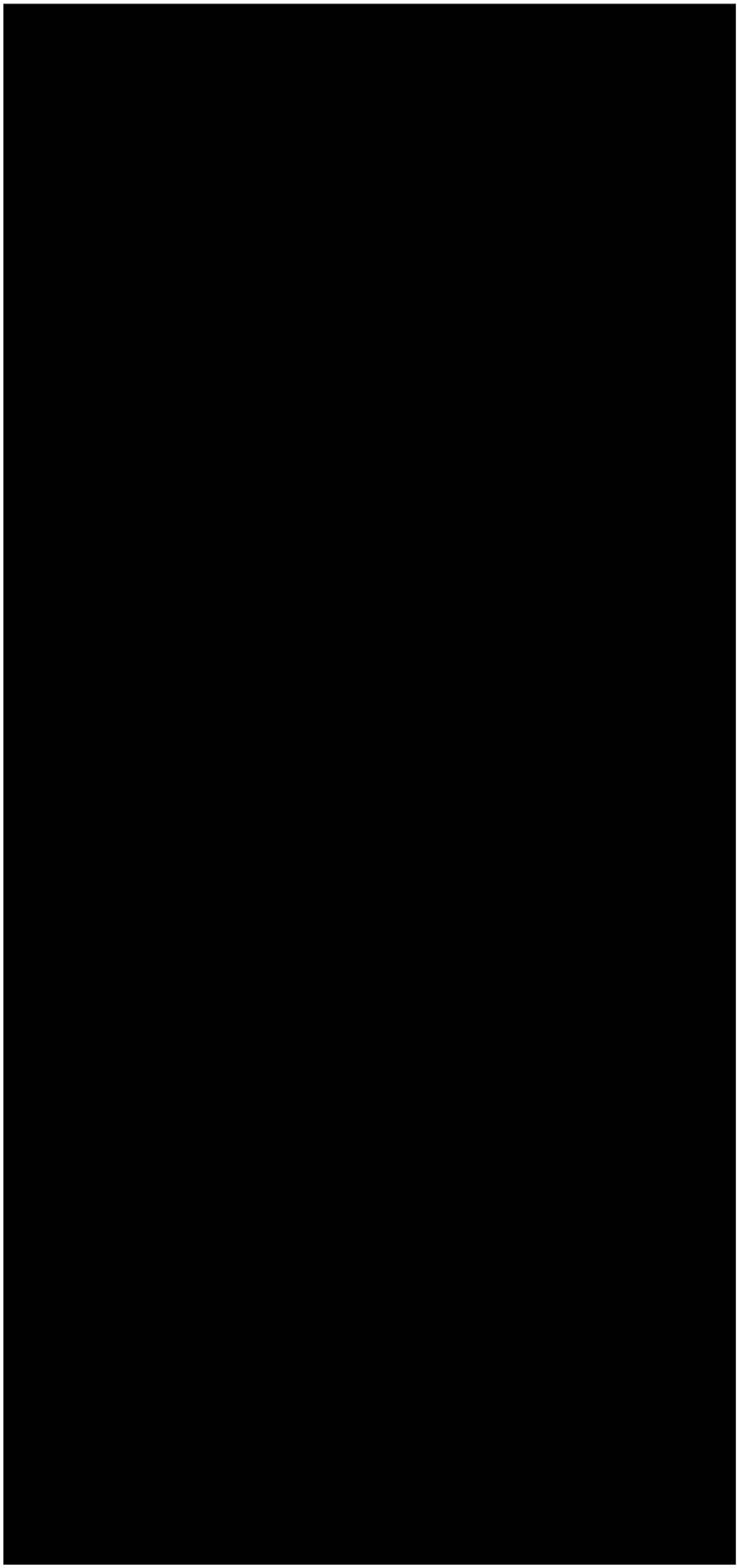
13. RELEASE OF INFORMATION

All technical data provided to the contractor by the Government and/or by the contractor for the Government shall be protected from public disclosure in accordance with the markings contained therein. All other information relating to the items being delivered or services being performed under this delivery order may not be disclosed by any means without prior approval of the authorized representative of the contracting officer. Dissemination or public disclosure includes, but is not limited to: permitting access to such information by foreign nationals or by any other persons on entity, publication or technical or scientific, advertising, or any other proposed public release. The contractor shall provide adequate physical protection to such information so as to preclude access by any person or entity not authorized such access by the Government.

LEVEL OF EFFORT







Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0003	N/A	N/A	N/A	N/A
0003AA	Destination	Government	Destination	Government
0003AB	Destination	Government	Destination	Government
0004	N/A	N/A	N/A	N/A
0004AA	Destination	Government	Destination	Government
0004AB	Destination	Government	Destination	Government
0005	N/A	N/A	N/A	N/A
0005AA	Destination	Government	Destination	Government
0006	N/A	N/A	N/A	N/A
0006AA	Destination	Government	Destination	Government
0007	N/A	N/A	N/A	N/A
0007AA	Destination	Government	Destination	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0003	N/A	N/A	N/A	N/A
0003AA	POP 26-SEP-2019 TO 22-MAY-2021	N/A	NAVAL SURFACE WARFARE CENTER PHILA (b) (6)(b) (6)(b) (6)(b) (6) NSWC PHILADELPHIA DIVISION 1601 LANGLEY AVENUE BLDG 542 PHILADELPHIA PA 19112 (b) (6)(b) (6) FOB: Destination	N64498
0003AB	POP 26-SEP-2019 TO 22-MAY-2021	N/A	(SAME AS PREVIOUS LOCATION) FOB: Destination	N64498
0004	N/A	N/A	N/A	N/A
0004AA	POP 26-SEP-2019 TO 22-MAY-2021	N/A	NAVAL SURFACE WARFARE CENTER PHILA (b) (6)(b) (6)(b) (6)(b) (6) NSWC PHILADELPHIA DIVISION 1601 LANGLEY AVENUE BLDG 542 PHILADELPHIA PA 19112 (b) (6)(b) (6) FOB: Destination	N64498
0004AB	POP 26-SEP-2019 TO 22-MAY-2021	N/A	(SAME AS PREVIOUS LOCATION) FOB: Destination	N64498
0005	N/A	N/A	N/A	N/A
0005AA	POP 26-SEP-2019 TO 22-MAY-2021	N/A	NAVAL SURFACE WARFARE CENTER PHILA (b) (6)(b) (6)(b) (6)(b) (6) NSWC PHILADELPHIA DIVISION 1601 LANGLEY AVENUE BLDG 542 PHILADELPHIA PA 19112 (b) (6)(b) (6) FOB: Destination	N64498
0006	N/A	N/A	N/A	N/A

0006AA	POP 26-SEP-2019 TO 22-MAY-2021	N/A	NAVAL SURFACE WARFARE CENTER PHILA (b) (6)(b) (6)(b) (6)(b) (6) NSWC PHILADELPHIA DIVISION 1601 LANGLEY AVENUE BLDG 542 PHILADELPHIA PA 19112 (b) (6)(b) (6) FOB: Destination	N64498
0007	N/A	N/A	N/A	N/A
0007AA	POP 26-SEP-2019 TO 22-MAY-2021	N/A	NAVAL SURFACE WARFARE CENTER PHILA (b) (6)(b) (6)(b) (6)(b) (6) NSWC PHILADELPHIA DIVISION 1601 LANGLEY AVENUE BLDG 542 PHILADELPHIA PA 19112 (b) (6)(b) (6) FOB: Destination	N64498

Section G - Contract Administration Data

FUNDING INFO

The purpose of this modification is to provide incremental funding in the amount of [redacted] as a result, the total amount of funding obligated and available for payment under this order is [redacted] It is estimated that the funding under this order will cover the cost of performance through 01 December 2019. In accordance with contract clause 52.232-22, Limitation of Funds, the Government is not obligated to reimburse the contractor for any costs incurred in excess of [redacted] unless additional funds are made available and obligated under this order in a subsequent modification. The total unfunded balance remaining is [redacted] based on the total contract value.

ACCOUNTING AND APPROPRIATION DATA

AA: 1791810 81DM 251 VU021 0 050120 2D 000000
COST CODE: A00005112402
AMOUNT [redacted]

ACRN	CLIN/SLIN	CIN	AMOUNT
AA	0003AB	130079265500001	[redacted]
	0004AB	130079265500002	

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.223-18	Encouraging Contractor Policies To Ban Text Messaging While Driving	AUG 2011
52.232-19	Availability Of Funds For The Next Fiscal Year	APR 1984
52.232-22	Limitation Of Funds	APR 1984
52.244-2	Subcontracts	OCT 2010
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	SEP 2011
252.204-0012	PAYMENT INSTRUCTIONS FOR MULTIPLE ACCOUNTING CLASSIFICATION CITATIONS	AUG 2013
252.204-7012	Safeguarding Covered Defense Information and Cyber Incident Reporting	OCT 2016

CLAUSES INCORPORATED BY FULL TEXT

52.222-2 PAYMENT FOR OVERTIME PREMIUMS (JUL 1990)

(a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed $230,992.07 or the overtime premium is paid for work --

(1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;

(2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;

(3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or

(4) That will result in lower overall costs to the Government.

(b) Any request for estimated overtime premiums that exceeds the amount specified above shall include all estimated overtime for contract completion and shall--

(1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;

(2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;

(3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and

(4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

* Insert either "zero" or the dollar amount agreed to during negotiations. The inserted figure does not apply to the exceptions in paragraph (a)(1) through (a)(4) of the clause.

(End of clause)